

What is claimed is:

1. An interpolation method of creating a smooth curve based on a sequence of command points and performing interpolation on the smooth curve using a numerical controller, comprising the steps of:

(a) creating interpolation points between adjacent twos of the sequence of command points as shape-defining points;

(b) selecting one shape-defining point and shape-defining points in front and in the rear of the one shape-defining point from the shape-defining points created in said step (a);

(c) creating an approximate curve for the shape-defining points selected in said step (b);

(d) moving the one shape defining point towards the approximate curve created in said step (c) to determine a modified shape-defining point for the one shape-defining point;

(e) repeatedly executing said steps (b) to (d) for the other shape-defining points to obtain a sequence of modified shape-defining points;

(f) defining a curve passing the sequence of modified shape-defining points; and

(g) perform interpolation on the curve defined in said step (f).

2. An interpolation method according to claim 1, wherein one or more of the command points are used as the shape-defining points in said step (a).

3. An interpolation method according to claim 1, wherein the interpolation points are created with a unit not greater than a set unit in preparing the sequence of command points in said step (a).

4. An interpolation method according to claim 1, wherein if a distance between adjacent two of the command points is shorter than a first reference

value, an interpolation point between the adjacent two command points is used as a substitute therefor in said step (a).

5. An interpolation method according to claim 4, wherein the interpolated point is a middle point of the adjacent two command points.

6. An interpolation method according to claim 1, wherein the approximate curve is created to have the least sum of squares of distances from the selected shape-defining points in said step (c).

7. An interpolation method according to claim 1, wherein an amount of moving the one shape-defining point for modification is restricted to a set value in said step (d).

8. An interpolation method according to claim 1, wherein if a distance between adjacent two of the modified shape-defining points is shorter than a second reference value, a point interpolated between the adjacent two modified shape-defining points is used as a substitute therefor in said step (d).

9. An interpolation method according to claim 8, wherein the interpolated point is a middle point of the adjacent two modified shape-defining points.

10. An interpolation method according to claim 1, wherein the one shape-defining point is moved gradually with a unit not greater than a set unit in preparing the sequence of command points in said step (d).

11. An interpolation method according to claim 1, wherein first-order differentiate values of the approximate curve at points corresponding to the modified shape-defining points are used in creating the curve passing the

sequence of modified shape-defining points in said step (f).

12. An interpolation method according to claim 1, wherein the curve defined in said step (f) is a NURBS curve.

13. An interpolation method according to claim 1, wherein the curve defined in said step (f) is a spline curve.

14. An interpolation method according to claim 1, wherein the interpolation is performed with a unit not greater than a set unit in preparing the sequence of command points in said step (g).